UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,107	04/14/2000	Philippe Verwaerde	B0192/7013(ERP)	8463

7590 10/03/2002

Elizabeth R Plummer
c/o Wolf Greenfield and Sacks P C
Federal Reserve Plaza
600 Atlantic Avenue
Boston, MA 02210-2211

EXAMINER	
WHITEMAN, BRIAN A	
ART UNIT	PAPER NUMBER
1635	

DATE MAILED: 10/03/2002 15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/550,107	Applicant(s) VERWAERDE ET AL.	
	Examiner Brian Whiteman	Art Unit 1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43,45-50,63-73,88-90,98-100 and 102-213* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☒ Claim(s) *187-213* is/are allowed.

6)☒ Claim(s) *1,8-13,17-20,23-30,36 and 37* is/are rejected.

7)☒ Claim(s) *38-43* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Continuation of Disposition of Claims: Claims withdrawn from consideration are 2-7,14-16,21,22,31-35,45-50,63-73,88-90,98-100 and 102-186.

DETAILED ACTION

Non-Final Rejection

Claims 1, 8-13, 17-20, 23-30, 36-43, and new claims 187-213 are pending examination.

Applicants' traversal, the cancellation of claims 44, 51-62, 74-87, 91-97, and 101, the addition of claims 187-213, and the amendment to claims 8-13, 17-20, 23-30, and 36-43, in paper no. 14 are acknowledged and considered.

Election/Restrictions

In view of the search of the prior art, the non-elected species in claim 28 and the non-elected species transgenic in claim 30 will be rejoined with the elected embodiment. However, the other non-elected species or other non-elected inventions will not be rejoined with the elected embodiment because applicants have not overcome the restriction requirement set forth in paper no. 9 or for the reasons set forth below.

This application contains claims 2-7, 14-16, 21-22, 31-35, 45-50, 63-73, 88-90, 98-100, 102-186 are drawn to an invention non-elected with traverse in Paper No. 11. Applicants have not cancelled these claims.

Information Disclosure Statement

It is acknowledged that applicants assert that they have submitted a 1449 correctly citing the articles (C22, C26 and C28) that were not initialed by the examiner in the last office action. However, the 1449 correctly citing the articles was not attached to the amendment and therefore has been misplaced. As a courtesy to the examiner, the examiner requests a copy of the 1449 correctly citing the articles.

Drawings

NOTE: In the next response, please submit a response to the PTO 498 because a PTO 498 was filed with the non-final rejection dated 2/14/02 and the applicants have not submitted proposed corrections to the drawings. If the reply to the Non-Final Rejection does not have a response to the 498, the response will be considered non-responsive. See 37 CFR 1.85(a).

Claim Objections

The objection set forth in paper no. 12 is moot in view of the amendment to the claims.

However, in view of the amended claims, a new objection follows:

Claims 38-43 are objected to as being dependent upon a rejected base claim (claim 1), but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The rejection set forth in paper no. 12 under 112 second paragraph is moot in view of the amendment to the claims.

Claim Rejections - 35 USC § 102

The rejections set forth in paper no. 12 under 102 are moot in view of the amendment to the claims and applicants' traversal. However, a new rejection under 102 follows:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 8, 9, 10, 11, 12, 17, 18, 23, 27, 28, 29, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaplan et al. (US patent No. 6,329,566, effective filing date, 5/29/97) as evident by Miwa et al. (IDS, US Patent No. 4,444,891). Kaplan teaches C. elegans assays (column 11, line 23-column 14, line 24. The microscopic nematodes, C. elegans is a useful model for studying neurodegeneration. In one particular embodiment, such compound screens are carried out using rapid, high throughput screening assays. The animals are distributed into 96 well microtiter plate dishes such that there is one animal per well. GFP assays may be carried out by any means, but are preferably monitored using a microtiter fluorescence reader. In an alternative compound screen, the reported protein need not be GFP. For example the transgenic animal may carry a lacZ reporter gene and be distributed into microtiter wells as described above. Kaplan does not teach the inherent characteristic of the nematode which Miwa shows that a nematode is a self-fertilizing hermaphrodite and crossing is unnecessary (column 2) (which shows that a characteristic not disclosed in the primary reference is inherent, See MPEP 2131.01).

To the extent that the applicants' traversal (pages 9-13) is applicable to the new rejection under 102, the traversal is not found persuasive for the reasons set forth above.

Claim Rejections - 35 USC § 103

The rejections set forth in paper no. 12 under 103 are moot in view of the amendment to the claims and applicants' traversal. However, new rejections under 103 follow:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or non-obviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al. (US patent No. 6,329,566, effective filing date, 5/29/97) in further view of applicants' own admission that a non-visual detection system is commercially available from UNION BIOMETRICA, INC (page 7, lines 14-26 of the specification). Kaplan teaches C. elegans assays (column 11, line 23-column 14, line 24). The microscopic nematodes, C. elegans is a useful model for studying neurodegeneration. In one particular embodiment, such compound screens are carried out using rapid, high throughput screening assays. The animals are distributed into 96 well microtiter plate dishes such that there is one animal per well. GFP assays may be carried out by any means, but are preferably monitored using a microtiter fluorescence reader. In an alternative compound screen, the reported protein need not be GFP. For example the transgenic animal may carry a lacZ reporter gene and be distributed into microtiter wells as described above. However, Kaplan does not specifically teach using a FANS device in a method of identifying compounds, which have potential pharmacological activity using nematodes worms.

However, at the time the invention was made, applicants' admit that a FANS device was commercially available to one of ordinary skill in the art for identifying chemical substances having potential pharmacological activity using nematode worms.

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to modify the teaching of Kaplan in further view of applicants' own admission, namely to use a FANS device in a method of identifying a chemical substance, which has potential pharmacological activity using nematodes worms, which method comprises the step of detecting a biochemical signal using a high throughput screening system. One of ordinary

skill in the art would have been motivated to use the FANS device because Kaplan teaches that the assays are preferably carried out using a rapid high throughput screening and the FANS device offers high throughput screening.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made

To the extent that the applicants' traversal (pages 13-31) is applicable to the new rejection under 103, the traversal is not found persuasive for the reasons set forth above.

Claims 1, 10, 12, and 13 are unpatentable under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al. (US patent No. 6,329,566, effective filing date, 5/29/97) taken with Kerr et al. (West Coast Worm Meeting, abstract 77, 1998, http:/elegans.swmed.edu/WCWM/98/). Kaplan teaches C. elegans assays (column 11, line 23-column 14, line 24). The microscopic nematodes, C. elegans is a useful model for studying neurodegeneration. In one particular embodiment, such compound screens are carried out using rapid, high throughput screening assays. The animals are distributed into 96 well microtiter plate dishes such that there is one animal per well. GFP assays may be carried out by any means, but are preferably monitored using a microtiter fluorescence reader. In an alternative compound screen, the reported protein need not be GFP. For example the transgenic animal may carry a lacZ reporter gene and be distributed into microtiter wells as described above. However, Kaplan does not specifically teach a method of identifying a chemical substance which has potential pharmacological activity using nematodes worms, which method comprises the step of using a marker molecule that is capable of generating a fluorescent molecule to detect a signal detecting a biochemical change.

However, at the time the invention was made, Kerr teaches a marker that is capable of generating a fluorescent molecule and is used to detect changes in intracellular levels of ions in C. elegans.

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made as routine practice to combine the teaching of Kaplan taken with Kerr, namely to use the marker to generate a fluorescent molecule taught by Kerr in a method of identifying a chemical substance, which has potential pharmacological activity using nematodes worms, which method comprises the step of detecting a signal comprises detecting a change in a measurable property of a marker molecule. One of ordinary skill in the art would have been motivated to combine the teaching because it was routine in the art as taught by Kaplan to use multi-well plates, a multi-well plate reader, marker molecules, and non-visual detection devices for studying compound interactions in worms.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

To the extent that the applicants' traversal (pages 13-31) is applicable to the new rejection under 103, the traversal is not found persuasive for the reasons set forth above.

Claims 1, 10, 12, and 13 are unpatentable under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al. (US patent No. 6,329,566, effective filing date, 5/29/97) taken with Miyawaki et al. (Nature, Vol. 388:882-887, 1997). Kaplan teaches C. elegans assays (column 11, line 23-column 14, line 24). The microscopic nematodes, C. elegans is a useful model for studying neurodegeneration. In one particular embodiment, such compound screens are carried out using rapid, high throughput screening assays. The animals are distributed into 96 well microtiter plate

dishes such that there is one animal per well. GFP assays may be carried out by any means, but are preferably monitored using a microtiter fluorescence reader. In an alternative compound screen, the reported protein need not be GFP. For example the transgenic animal may carry a lacZ reporter gene and be distributed into microtiter wells as described above. However, Kaplan does not specifically teach a method of identifying a chemical substance which has potential pharmacological activity using nematodes worms, which method comprises the step of using a marker molecule that is capable of being cleaved by the action of an enzyme present in the gut of the C.elegans to generate a fluorescent molecule to detect a signal detecting a biochemical change.

However, at the time the invention was made, Miyawaki teaches a marker that is capable of being cleaved by the action of an enzyme present in the gut of C.elegans to generate a fluorescent molecule and is used to detect changes in intracellular levels of ions.

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made as routine practice to combine the teaching of Kaplan taken with Kerr, namely to use the marker to generate a fluorescent molecule taught by Kerr in a method of identifying a chemical substance, which has potential pharmacological activity using nematodes worms, which method comprises the step of detecting a signal comprises detecting a change in a measurable property of a marker molecule. One of ordinary skill in the art would have been motivated to combine the teaching because it was routine in the art as taught by Kaplan to use multi-well plates, a multi-well plate reader, marker molecules, and non-visual detection devices for studying compound interactions in worms.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

To the extent that the applicants' traversal (pages 13-31) is applicable to the new rejection under 103, the traversal is not found persuasive for the reasons set forth above.

Claims 1, 23-26, and 36-37 are unpatentable under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al. (US patent No. 6,329,566, effective filing date, 5/29/97) as evident by Miwa (US Patent No. 4,444,891) taken with Rand (Methods in Cell Biology, Vol. 48, 1995, IDS). Kaplan teaches C. elegans assays (column 11, line 23-column 14, line 24). The microscopic nematodes, C. elegans is a useful model for studying neurodegeneration. In one particular embodiment, such compound screens are carried out using rapid, high throughput screening assays. The animals are distributed into 96 well microtiter plate dishes such that there is one animal per well. GFP assays may be carried out by any means, but are preferably monitored using a microtiter fluorescence reader. In an alternative compound screen, the reported protein need not be GFP. For example the transgenic animal may carry a lacZ reporter gene and be distributed into microtiter wells as described above. In addition, Kaplan does not teach the inherent characteristic of the nematode which Miwa shows that a nematode is a self-fertilizing hermaphrodite and crossing is unnecessary (column 2). However, Kaplan does not specifically teach a method of identifying a chemical substance which has potential pharmacological activity using nematodes worms, which method comprises dispensing equal number of worms in a low melting point agarose.

However, at the time the invention was made, Rand teaches combining compounds and C. elegans [wild types] (pages 188 and 200). Rand teaches combining compounds and C.

elegans in a method of studying the interaction of the two (pages 188, 191, and 200). Rand further teaches that micro-titer plates or other multi-well plates are useful for experiments because they permit many strains and/or drug concentrations to be tested in parallel (pages 191, 193, 200). In addition, Rand teaches that the experiment can take place in liquid medium or on agar plates (viscous solution) (pages 190-191). Furthermore, Rand teaches that it is important to use synchronous populations to determine state-specific effects directly (page 191). Rand further discusses using a quantitative assay for resistance/sensitivity to the drug being tested and the labor-intensive method of progeny counting.

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made as routine practice to modify the teaching of Kaplan with Rand to dispense equal number of worms in a low melting point agarose. One of ordinary skill in the art would have been motivated to combine the teaching because using a high throughput screening device would avoid the labor intensive method of progeny counting and it was routine in the art as taught by Rand to use liquid medium or agar plates for studying compound interactions in worms.

Therefore the invention as a whole would have been *prima facie* obvious to one ordinary skill in the art at the time the invention was made.

To the extent that the applicants' traversal (pages 13-31) is applicable to the new rejection under 103, the traversal is not found persuasive for the reasons set forth above.

Claims 38-43 and new claims 187-213 are free of the prior art.

Double Patenting

The non-statutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

improper time-wise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of co-pending Application No. 09/549,872 in view of Kaplan et al. (US patent No. 6,329,566, effective filing date, 5/29/97). Co-pending application claims a method of identifying compounds which enhance or up-regulate the activity of sarco/endoplasmic reticulum calcium ATPase, which method comprises: contacting C. elegans which exhibit reduced SERCA ATPase compared to wild type C. Elegans in one or more cell types or tissues with a compound under test; and detecting a phenotypic, biochemical, or behavioural change in the C. elegans indicating a reversion towards a wild type SERCA activity in the one or more cell types or tissues which exhibit reduced SERCA activity in the absence of the compound.

The difference between the claims of the instant application and co-pending application '872 is that the instant application encompasses using a non-visual detection means in the screening assay. However, Kaplan teaches a non-visual detection (e.g. microtiter plate fluorescence reader, see column 12, lines 1-32) for screening worms and detecting a biochemical change. Thus, one of ordinary skill in the art would have motivated to combine the co-pending application in view Kaplan to use the non-visual detection means taught by Kaplan in the method

of the co-pending application. Therefore, the claims of the instant application and co-pending application in view of Kaplan are obvious variants of one another.

This is a provisional obviousness-type double patenting rejection.

Applicants' traversal is not found persuasive because it is not applicable to the double patenting rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kay Pinkney whose telephone number is (703) 305-3553.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Whiteman whose telephone number is (703) 305-0775. The examiner can normally be reached on Monday through Friday from 7:00 to 4:00 (Eastern Standard Time), with alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's mentor, primary examiner, Dave Nguyen can be reached at (703) 305-2024.

If attempts to reach the primary examiner by telephone are unsuccessful, the examiner's supervisor, John L. LeGuyader, SPE - Art Unit 1635, can be reached at (703) 308-0447.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Brian Whiteman
Patent Examiner, Group 1635
9/27/02

DAVE T. NGUYEN
PRIMARY EXAMINER